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Total Number of Pages in This Submission

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Application Number

09/776,009

Filing Date

February 2, 2001

First Named Inventor

Michael A Vyvoda

Art Unit

2814

Examiner Name

Anh D. Mai

Attorney Docket Number

MA-027

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SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name
SanDisk Corporation

Signature

Printed name
Pamela J. Squyres

Date
February 6, 2005

Reg. No. 52,246

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Attorney Docket No. MA-027

In re patent application of
Michael A. Vyvoda

Serial No. 09/776,009

Group Art Unit: 2814

Filed: September 2, 2001

Examiner: Anh. D. Mai

For: WAFER SURFACE THAT FACILITATES PARTICLE REMOVAL

REPLY BRIEF

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

February 1, 2006

To the Commissioner:

An Appeal Brief was filed in the above-captioned case on September 18, 2005.
Appellant respectfully files this Reply Brief in response to the Examiner's Answer mailed on
December 6, 2005. An Appendix listing the pending claims is included in this Reply Brief.

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Pamela J. Squyres, reg. no. 52,246


Date of Deposit

SUMMARY

The following discussion responds to the Examiner's Answer mailed December 6, 2005. In the interest of brevity, Appellant has tried to limit rebuttal to new points raised in the Examiner's Answer. Where Appellant believes the Examiner's arguments to have been sufficiently addressed by the Appeal Brief, those arguments will be allowed to stand and will not be repeated.

DISCUSSION

This Discussion will identify points in the Examiner's Answer that require rebuttal, then will provide such rebuttal.

- **Product by process limitation, page 4**

The Examiner declines to grant patentable weight to the limitation "wherein the surface has been planarized by chemical mechanical planarization" in claim 63. The surface of Wu is not planarized by chemical mechanical planarization.

"The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985)

Recall that a problem to be solved by the invention is that a surface exposed by chemical mechanical planarization (CMP) which consists of both hydrophobic and hydrophilic materials has a slurry residue and is difficult to clean by conventional methods.

To paraphrase *In re Thorpe*, to be granted patentable weight, the process must in some way make the product different than if the process was not used. As described in paragraph [0002] of the present application, one skilled in the art would expect that planarization by CMP will leave behind slurry residue particles, which will need to be cleaned. Some other planarizing process, like etchback, will not leave these slurry residue particle behind. The surfaces are different in a way that is central to the invention, and this limitation is thus entitled to patentable weight.

- **Paragraph beginning “In Fig. 6 of Wu, ...”**

Near the top of page 6, the Examiner argues that the polysilicon strips 16 and the dielectric strips 20 “appear to be approximately the same size” and from this concludes that the limitation that “the total wafer surface area that is polysilicon is less than or equal to 70 percent is met.” The Appeal Brief of September 18, 2005 explains in detail that patent drawings which are not to scale cannot be used to infer dimensions when the specification is silent on the subject. Appellant will simply reassert that Wu teaches that the surface shown *may* be equal to 70 percent or less polysilicon, but does not that this surface *is* 70 percent or less polysilicon.

- **Paragraph beginning “Appellant further adds ...”**

The Examiner goes on to assert (bottom of page 6):

“Appellant further adds Wu is silent regarding the portion of the wafer outside of the area shown in Fig. 6.

The above seems to be irrelevant, since the portion outside area is not recited in the claim.”

Appellants must respectfully disagree. The claim recites “a wafer having a surface,” including the limitation “wherein a first percentage of *total wafer surface area* that is polysilicon is less than or equal to 70 percent.” The claim does in fact refer to the surface area of the *total wafer*, not just to a selected section. The teachings of Wu et al. offer no guidance regarding the area outside the section shown in Fig. 6. If one turns to the specification of the present invention for guidance regarding how to interpret this phrase, one will find repeated references to the *total wafer surface area* (for example see paragraphs [0010], [0011], [0018], and the Abstract.)

Appellants believe the remainder of the Examiner’s arguments have largely been addressed either in the Appeal Brief or in this Reply Brief and thus will not repeat them here.

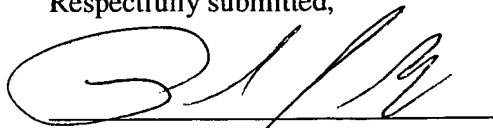
Serial Number 09/776,009

CONCLUSION

Appellants respectfully solicit the Honorable Board of Patent Appeals and Interferences to reverse the rejections of the pending claims and pass this application on to allowance.

Respectfully submitted,

2/6/6
Date


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APPENDIX

1-62. (Cancelled)

63. A wafer having a surface, the surface comprising:

a plurality of elongated strips of polysilicon; and

a plurality of elongated strips of dielectric material, the strips of dielectric material alternating with the strips of polysilicon,

wherein the surface has been planarized by chemical mechanical planarization, and

wherein a first percentage of total wafer surface area that is polysilicon is less than or equal to 70 percent.

64. The wafer of claim 63 wherein the first percentage is greater than 50 percent.

65. The wafer of claim 63 wherein the first percentage is less than or equal to 60 percent.

66. The wafer of claim 65 wherein the first percentage is greater than 50 percent.

67. (Cancelled)

68. The wafer of claim 63 wherein the strips of polysilicon have a shortest dimension less than or equal to 500 microns.

69. The wafer of claim 68 wherein the strips of polysilicon have a shortest dimension between 0.25 and 500 microns.

70. The wafer of claim 63 wherein the surface of the wafer can attract enough water to wet sufficiently allowing removal of residual particles therefrom.